



**Suppl. Figure 1:** Superposition of  $^1\text{H}$ - $^{15}\text{N}$  resonance cross peaks of a random set of 20 proteins deposited in the Biological Magnetic Resonance Bank (BMRB). Entry codes are 4158, 4909, 5567, 6609, 7384, 10048, 10257, 11255, 11424, 15492, 15972, 16349, 16879, 17546, 18353, 18415, 18439, 18487, 18539, 18569. From these entries, one single artificial 2D  $^1\text{H}$ - $^{15}\text{N}$  was generated containing ~2300 representative resonance cross peaks. The magnified part of the spectrum depicts the spectral region of acetyl-, butyryl-, and propyl-lysine *indicator resonance signals* ( $\text{HN}\zeta$ ) and serves to illustrate the degree of signal overlap in these parts of 2D  $^1\text{H}$ - $^{15}\text{N}$  correlation spectra.